The 2007 Consumer Confidence Report

City of Great Falls Public Drinking Water Supply

P.O. Box 5021, Great Falls, MT 59403 Phone (406) 727-1325

The City of Great Falls Water Utility is proud to present this report, the purpose of which is to evoke confidence in the quality of our drinking water. Please take a few moments to review it and call us with any questions.

The source of our water

All water used by the residents of Great Falls, Malmstrom Air Force Base and Black Eagle is water that was pumped from the Missouri River and treated to make it safe to drink. The water treatment facility is located just upstream from the Missouri's confluence with the Sun River in Great Falls.

Water treatment and purification

Great Falls utilizes a conventional water treatment process and produces on average 4.5 billion gallons of safe, high quality drinking water per year. The treatment process is monitored continuously. Only after careful scrutiny is the treated water allowed to be pumped through underground water mains to reservoirs for use in homes and businesses.

The City's water treatment and distribution personnel stay abreast of new Federal and State drinking water regulations as they are written so that treatment and/or monitoring changes can be implemented as needed in a timely and cost-effective manner. The City is committed to the goal of providing its citizens a safe and dependable supply of drinking water. This goal was achieved during 2007 by operating without any violations, exemptions or variances regarding water quality.

"I am pleased to report that our drinking water meets all federal and state requirements and is among the safest and best-tasting in the world."

-- John Wandke, City Water Quality Specialist

Why are there contaminants in our source water?

Water that precipitates from the atmosphere flows across the surface of the land or percolates through the soil. Naturally occurring minerals become dissolved and waste substances produced by plants, animals and humans are picked up. The water then either becomes groundwater or makes its way to a stream, river, pond, lake or reservoir. Any of this accumulated water can then be used as a drinking water source.

Contaminants that may need to be removed from a source water before it can be considered safe to drink include:

- microbial contaminants, including viruses, bacteria and protozoa. These can originate from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- inorganic contaminants, such as salts and metals. These
 can be naturally occurring or the result of urban storm water
 runoff, industrial or domestic wastewater discharges, oil and
 gas production, mining or farming.
- pesticides and herbicides. These may come from a variety of sources including agriculture, urban storm water runoff and residential uses.

- organic chemical contaminants, including synthetic and volatile organic chemicals. These are by-products of industrial processes and petroleum production and can also come from gas stations, urban storm water runoff and septic systems.
- radioactive contaminants. These can be naturally occurring or the result of oil and gas production or mining activities.

Montana's Department of Environmental Quality (DEQ) recently completed and made available the Great Falls source water delineation and assessment report. This report delineates a source water protection area for Great Falls (an area of surface water and land that contributes water to the Great Falls Public Water Supply). It also identifies locations or regions within this area where contaminants might be generated, stored or transported and addresses their relative potential for contaminating Great Falls drinking water. The report can be used to develop a source water protection plan for Great Falls.

Do I need to take special precautions?

The Environmental Protection Agency diligently establishes regulations setting limits on allowable contaminants in drinking water delivered by public water systems. The Food and Drug Administration regulates allowable contaminants in bottled water, affording equivalent protection of public health. All drinking water may be reasonably expected to contain very small amounts of some allowable contaminants. It's important to remember that the presence of these contaminants does not necessarily mean the water will pose a health risk. Detailed information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791) or the local City-County Health Department (454-6950).

Certain people may be more vulnerable to contaminants in drinking water than the general population. For example, immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, persons having HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections caused by certain microbiological contaminants. These people should seek advice about their drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

How can I become involved?

Learn more about your local water utility by attending any of the regularly scheduled City Commission meetings on the first and third Tuesdays of every month at 7:00 p.m. in the Commission Chambers at the Great Falls Civic Center. You may also arrange a tour of the local water treatment plant by calling 727-1325. Regulatory updates and other interesting information can be found by visiting the American Water Works Association web site (http://www.awwa.org).

Ouestions & Answers

Q: How often is our drinking water tested?

A: The type and frequency of testing required is based on the water's source and the number of people served. Great Falls is classified as a medium-sized (between 50,000 and 100,000 served) surface water (Missouri River) community public water supply. As such, Great Falls is required to monitor the levels of some drinking water constituents, such as disinfectant residual, continuously while other constituents, such as radionuclides, are required to be tested only once every several years. The data presented in the tables contained in this report are the results from the most recent testing done in accordance with the applicable regulations.

Q: Why does the water coming out of my tap look milky sometimes but then clear up in my glass after a few seconds?

A: The water coming into your home may contain harmless dissolved gases (air) held in solution by the pressure of the water system. As the water leaves the tap the pressure rapidly decreases causing millions of tiny air bubbles to be suspended in the water, producing the milky appearance. The water then clears from the bottom of the container as the air bubbles rise and return to the atmosphere.

Q: How hard is Great Falls water?

A: Great Falls water is classified as moderately hard, ranging from 127 to 167 milligrams per liter (7.4 to 9.8 grains per gallon) as calcium carbonate. Some households install water softeners as a matter of personal preference but softening is generally not necessary.

Some Facts About Water

Of the 326 million cubic miles of water on earth, 97% is seawater. Of the remaining 3%, 77% is frozen and 22% is underground. That leaves each person on our planet enough liquid fresh surface water to fill a cube 130 feet on a side. But this water is not evenly distributed and is in constant demand.

One gallon of water weighs about 81/3 pounds.

Average total water use (both indoor and outdoor) for a typical single-family home is about 100 gallons per person per day.

You can fill an 8-ounce glass with drinking water 15,000 times for the same cost as a six-pack of soda.

You can survive about a month without food, but only 5 to 7 days without water.

Water Analysis Data

The data tables on the next several pages contain terms and abbreviations with which you may be unfamiliar. In order to help you better understand the data we offer the following definitions and explanations:

parts per million (ppm) or milligrams per liter (mg/l) - one part per million is equivalent to one minute in two years or one penny in \$10,000.

parts per billion (ppb) or micrograms per liter ($\mu g/l$) - one part per billion is equivalent to one minute in 2,000 years or one penny in \$10,000,000.

picocuries per liter (pCi/l) - a measure of radioactivity in water.

millirems per year (mrem/yr) - a measure of radiation exposure. In the United States, the average person is exposed to an effective dose equivalent of approximately 360 mrem (whole body exposure) per year from all sources.

Nephelometric Turbidity Unit (NTU) - a measure of the clarity of water. Water having turbidity in excess of 5 NTU would appear noticeably cloudy to the average person.

Maximum Contaminant Level Goal - the "Goal" (MCLG) is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Contaminant Level - the "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Residual Detection Limit Goal or MRDLG - the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Maximum Residual Detection Limit or MRDL - the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Action Level (AL) - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique (TT) - a required process intended to reduce the level of a contaminant in drinking water.

The City of Great Falls routinely monitors for contaminants in drinking water according to Federal and State laws. The four data tables included in this report document the test results from monitoring during the period January 1st through December 31st, 2007. The State of Montana requires monitoring for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Therefore some of the following data, though representative, are more than one year old. The tables are arranged as follows:

Table I. Regulated Contaminants Detected

Table II. Unregulated Contaminants Detected

Table III. Regulated Contaminants Not Detected

Table IV. Unregulated Contaminants Not Detected

Additional copies of this report are available free of charge from the Great Falls Water Treatment Plant. If you have any questions about this report or your water utility contact John Wandke at (406) 727-1325.

ontaminant		Like	ly Source of	Contaminat	ion I	Jnit of	MCL	MCLG	Date	Level	Violatio
					Mea	surement			Sampled	Detected	(yes/no
rsenic		from	on of natural orchards; ru electronics pr	noff from gl	ass	ppb	10	0	1/16/07	3	no
uoride		erosi	on of natural	denosits:		ppm	4	4	1/16/07	0.78	no
uoride		water	erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories			ppiii	7	•	1/10/07	(all of it naturally- occurring)	110
itrate plus Nitr s Nitrogen)	rite	ing fi	runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits				10	10	1/16/07	0.16	no
ead		corro	sion of hous	ehold plumb	oing	ppb	AL = 15	15	30 tests	6	no
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opper ote: In a samp (16/07, no copp etected in the te it left the wate	per was treated water	deposits; leaching from wood preservatives 90 th percentile level must be						1.3	30 tests from high- risk* homes during July, August and September, 2007	0.31 @ 90 th percentile (see below) no site exceeded	no
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	OBBER BYI	D C L D	DI INIC CH	DANGA DAY	(i : 1	1				1.3 ppm	
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Contaminant (Table I. continued)	Likely Source of Contamination	Unit of Measurement	MCL	MCLG	Date Sampled	Level Detected	Violation (yes/no)
Turbidity Turbidity is a measure of the cloudiness of the water. It is	soil runoff	NTU	TT = 1 NTU maximum	0	throughout the year, every four hours	0.21 maximum for 2007 on 3/10/07	no
monitored because it is a good indicator of the effectiveness of the water filtration system.		NTU	TT < 0.3 NTU 95% of the time	0	throughout the year, every four hours	< 0.3 100% of the time	no
Radionuclides							
Beta/photon emitters	decay of natural and man-made deposits	mrem/yr	4	0	2/23/99	2.7 (± 2.7) pCi/l gross beta	no
Disinfectants	A						
Chlorine	water additive used to control microbes	ppm	MRDL=4	MRDLG=4	continuously	0.04 to 2.00	no
Chloramines [†]	water additive used to control microbes	ppm	MRDL=4	MRDLG=4		0.04 to 2.00	no

[†] The primary disinfectant used in Great Falls is free chlorine, with ammonia being added to form monochloramine just before the water leaves the treatment plant. Monochloramine does not dissipate as readily as free chlorine and thus helps in maintaining disinfection at the far edges of the distribution system without the need for booster chlorinators. Because monochloramine is a weak oxidizer compared with free chlorine, it also minimizes the formation of disinfection by-products. Total chlorine levels were checked at the treatment plant and throughout the distribution system on a daily basis during 2007 and at no time exceeded the MRDL or the MRDLG. The levels found ranged from a low of 0.04 ppm in the distribution system to a high of 2.00 ppm in water leaving the treatment plant.

Disinfection By-Products (DBPs)

TTHMs (total trihalomethanes)	by-product of drinking water disinfection by-product of drinking water disinfection		ppb	80 run. ann. avg.‡	N/A	quarterly	see table below	no
HAA5s (five haloacetic acids)					N/A	quarterly	aarterly see table below	
TTHM Summary sampling period →	2 nd quarter 2006	3 rd quarter 2006	4 th quarter 2006	1 st quarter 2007	2 nd quarter 2007		uarter 007	4 th quarter 2007
site # 1	31.8	44.3	30.3	24.1	33.8	38	8.1	29.7
site # 2	36.7	44.2	34.3	30.2	37.8	4;	3.2	38.2
site # 3	28.8	43.1	33.1	24.5	33.8	39	9.1	32.6
site # 4	34.0	51.5	38.8	27.8	36.7	39	9.1	35.1
quarterly average	32.8	45.8	34.1	26.7	35.5	3	9.9	33.9
[‡] running annual average	33.0	34.9	35.3	34.9	35.5	34	4.1	34.0
		highe	st compliance le	vel for 2007 = 35.5	r	ange = 24.1	to 43.2	

Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

IAA5 Summary	2 nd quarter	3 rd quarter	4 th quarter	1st quarter	2 nd quarter	3 rd quarter	4 th quarter
sampling period →	2006	2006	2006	2007	2007	2007	2007
site # 1	24.0	38.0	35.0	29.0	35.0	27.2	25.7
site # 2	25.4	35.0	14.0	30.0	23.9	21.2	19.1
site # 3	26.0	38.0	20.8	30.0	41.0	31.6	22.0
site # 4	21.9	35.7	14.6	25.0	33.0	27.0	21.6
quarterly average	24.3	36.7	21.1	28.5	33.2	26.8	22.1
running annual average	53.7	26.0	25.6	27.7	29.9	27.4	27.7
5 5		highe	st compliance lev	el for $2007 = 29.9$	9 rang	ge = 19.1 to 41.0	

highest compliance level for 2007 = 29.9 range = 19.1 to 41.0 Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Total Organic Carbon (TOC) provides a medium for the formation of disinfection by-products, which include TTHMs and HAA5s. Removing TOC at the water treatment plant is important in reducing the potential for the formation of all disinfection by-products, both regulated and unregulated.

Date Sampled	River Water TOC	Treated Water TOC	% Removal Required	% Removal Achieved	
1/16/07	2.5 ppm	2.0 ppm	15.0**	20.0	
2/20/07	2.5 ppm	1.7 ppm	15.0	32.0	
3/13/07	3.2 ppm	2.5 ppm	15.0	21.9	
4/16/07	1.8 ppm	1.5 ppm	15.0	16.7	
5/14/07	2.0 ppm	1.6 ppm	15.0	20.0	
6/18/07	1.8 ppm	1.5 ppm	15.0	16.7	
7/16/07	1.9 ppm	1.8 ppm	15.0	5.3	
8/13/07	2.0 ppm	1.4 ppm	15.0	30.0	
9/10/07	2.0 ppm	1.5 ppm	15.0	25.0	
10/15/07	2.2 ppm	1.8 ppm	15.0	18.2	
11/13/07	2.5 ppm	2.0 ppm	15.0	20.0	
12/17/07	2.3 ppm	1.8 ppm	15.0	21.7	

** minimum removal percentage based on river water total alkalinity and river water TOC level

Secondary Contaminants (Table I. continued)								
Secondary Parameter	Date Sampled	Level Detected	Unit of Measurement	SMCL***				
Calcium	1/16/07	40	ppm	N/A				
Magnesium	1/16/07	11	ppm	N/A				
Sodium	1/16/07	19	ppm	< 20 recommended				
Total Hardness	1/16/07	145	ppm	N/A				
Total Alkalinity	1/16/07	120	ppm	N/A				
Conductivity	1/16/07	387	micromhos/cm	N/A				
pH	1/16/07	7.7	pH units	6.5 - 8.5				

*** Secondary Maximum Contaminant Level (SMCL) – a chemical contaminant in excess of this amount may affect aesthetic qualities and public acceptance. SMCLs are non-enforceable standards.

	Table II. Un	regulated Contar	ninants Detected				
Unregulated contaminant moni	toring helps EPA to determi	ne where certain contamina	nts occur and whether it needs	to regulate those contaminants.			
Radionuclides	uclides Date Sampled Level Detected Unit of Measurement Sign						
Radon-222	1/09/95	1/09/95 47 (± 37) pCi/l see of federal regulation for radon in drinking water. Radon is a radioactive gas that you can't see,					
high levels in all types of hon household activities. Compare source of radon in indoor air. contains radon may also cause is inexpensive and easy. Fix y fix a radon problem that aren' RADON).	d to radon entering the hom Radon is a known human c increased risk of stomach ca our home if the level of rado	ne through soil, radon enteri carcinogen. Breathing air co cancer. If you are concerned on in your air is 4 picocurie	ing the home through tap water ontaining radon can lead to lun	will in most cases be a small g cancer. Drinking water that the air in your home. Testing her. There are simple ways to			
Inorganic Contaminants	Date Sampled	Level Detected	Unit of Measurement	SMCL			
Bicarbonate	1/16/07	147	ppm	N/A			
CLL-11-	1/16/07	12	nnm	14/11			
Chioride		13	ppm	250			
	1/16/07	4	ppm				
Potassium	1/16/07 1/16/07			250			
Chloride Potassium Silica Strontium	27 2 27 27	4	ppm	250 N/A			
Potassium Silica	1/16/07	4 18.2	ppm ppm	250 N/A N/A			
Potassium Silica Strontium Sulfate	1/16/07 1/21/03 1/16/07	4 18.2 210 47	ppm ppm ppb	250 N/A N/A N/A 500			
Potassium Silica Strontium Sulfate	1/16/07 1/21/03 1/16/07	18.2 210 47 organics that are not regular	ppm ppm ppb ppm	250 N/A N/A N/A 500			
Potassium Silica Strontium Sulfate The following three disinfection	1/16/07 1/21/03 1/16/07 on by-products are volatile o	4 18.2 210 47 organics that are not regular	ppm ppb ppm ted individually but are include	250 N/A N/A N/A N/A 500 ad in total trihalomethanes:			
Potassium Silica Strontium Sulfate The following three disinfection Contaminant	1/16/07 1/21/03 1/16/07 on by-products are volatile of Date Samp	18.2 210 47 organics that are not regular	ppm ppb ppm ted individually but are included exercised.	250 N/A N/A N/A 500 ed in total trihalomethanes: Unit of Measurement			

	Table III. Regulate	d Contaminants Not De	tected
Radionuclides – tested 10/22	2/02 (testing for uranium was not require	d because the gross alpha result did n	ot exceed the MCL of 15 pCi/l)
Alpha emitters		Combined radium	
Microbiological Contamina	ints - tested throughout 2007, 70 routine	distribution system samples per mon	th
Total Coliform Bacteria		Escherichia coli	
Inorganic Contaminants -	all tested 1/16/07 unless otherwise indica	nted	
Antimony	Cadmium	Iron	Nickel
Asbestos (11/24/03)	Chromium	Lead	Nitrite
Barium	Copper	Manganese	Selenium
Beryllium	Cyanide (1/30/06)	Mercury	Thallium
Volatile Organic Contamin	ants (VOCs) - all tested 5/14/07 unless	otherwise indicated	
Benzene	1,1-Dichloroethene	Styrene	Toluene
Carbon tetrachloride	cis-1,2-Dichloroethene	Tetrachloroethene	Vinyl chloride
Chlorobenzene	trans-1,2-Dichloroethene	1,2,4-Trichlorobenzene	Xylenes (ortho-, meta-, para-)
1,2-Dichlorobenzene	Methylene chloride	1,1,1-Trichloroethane	1,2-Dibromo-3-chloropropane
1,4-Dichlorobenzene	1,2-Dichloropropane	1,1,2-Trichloroethane	Total BTEX
1,2-Dichloroethane	Ethylbenzene	Trichloroethene	

Synthetic Organic Contaminants (S	OCs) - all tested 5/23/05 and 8/08/05 unless otherwise ind	icated (Table III. continued)
2,4,-D	Dibromochloropropane (DBCP) (6/13/05)	Hexachlorobenzene
2,4,5-TP (Silvex)	Dinoseb	Hexachlorocyclopentadiene (HEX)
Alachlor	Diquat (deferred)	Lindane (g-BHC)
Atrazine	Dioxin (2,3,7,8-TCDD) (deferred)	Methoxychlor
Benzo(a)pyrene (PAH)	Endothall (deferred)	Oxamyl (Vydate)
Carbofuran	Endrin	Polychlorinated biphenyls (PCB's)
Chlordane	Ethylene dibromide (EDB) (6/13/05)	Pentachlorophenol
Dalapon	Glyphosate (6/13/05)	Picloram (Tordon)
Di(2-ethylhexyl)adipate	Heptachlor	Simazine
Di(2-ethylhexyl)phthalate	Heptachlor epoxide	Toxaphene

		Table IV	. Unre	egulated (Contamir	nants N	lot Detec	cted		
Unregulated contamina	nt monitorin	g helps EPA	to determ	ine where certa	in contaminan	ts occur an	nd whether it	needs to	regulate those contaminants.	
Inorganic Contamina	nts – all teste	d 1/16/07 un	less other	wise indicated						
Aluminum	Carbo	onate		Molybdenum	(1/21/03)	Silver			Zinc (1/30/06)	
Volatile Organic Cont	aminants (V	OCs) – all te	ested 5/14/	/07 unless other	wise indicated	1				
Bromobenzene		1,3-Dichlor	robenzene		1,2,3-Trichle	oropropane		n-Pro	oylbenzene	
Bromoform		1,1-Dichlor	roethane		Bromochlore	omethane		sec-B	utylbenzene	
Bromomethane		1,3-Dichlor	ropropane		n-Butylbenz	ene		tert-B	utylbenzene	
1,2-Dibromoethane		2,2-Dichlor	ropropane		Dichlorodifl	uorometha	ne	1,2,3-	Trichlorobenzene	
Chloroethane		1,1-Dichlor	ropropene		Trichlorofluoromethane		1,2,4-Trimethylbenzene			
Chloromethane		cis-1,3-Dic	-Dichloropropene		Hexachlorobutadiene		1,3,5-Trimethylbenzene			
2-Chlorotoluene		trans-1,3-D	ans-1,3-Dichloropropene		Isopropylbenzene		Methyl tert-Butyl Ether (MTBE)			
4-Chlorotoluene			trachloroethane		p-Isopropyltoluene					
Dibromomethane			trachloroethane Naphthalene							
Synthetic Organic Co	ntaminants ((SOCs) – all	tested 5/2	3/05 and 8/08/0	5 unless other	wise indica	ated			
Aldrin			3-Hydroxycarbofuran			Aldicarb (Tem		remik)		
Butachlor			Methomyl			Aldicarb Sulfor		ulfone	fone	
Carbaryl			Metolac	hlor		Aldicarb Sulfor		ulfoxide		
Dicamba			Metribu	zin	0.52	Acifluorfen		1		
Dieldrin			Propach		1.105.55					
Unregulated Contami	nant Monito	oring Rule (U	JCMR1)	Contaminants	- all tested 10	/23/01, 1/0	2/02, 4/08/02	and 7/0	1/02	
Perchlorate		MTBE			2,4-Dinitrot			EPTC		
DCPA mono-acid		Nitrobenze	ne		2,6-Dinitrot	oluene		Molin	ate	
DCPA di-acid	102-00	Acetochlor			4-4'-DDE			Terba	cil	

As the above tables indicate, analysis of Great Falls drinking water revealed no violations during 2007. Although some constituents were detected, the Environmental Protection Agency considers water to be safe at these levels. Furthermore, MCLs are set very stringently. To put this into perspective, for a given regulated contaminant a person would have to drink 2 liters of water every day at the MCL level for a lifetime for there to be a one-in-a-million chance of having a corresponding adverse health effect.

Important additional information regarding source water monitoring:

During 2007 Great Falls collected monthly water samples directly from the Missouri River intake and had them analyzed for *Cryptosporidium*, a microbial pathogen found in surface water throughout the United States. Although the filtration aspect of our water treatment process removes *Cryptosporidium* it cannot guarantee 100% removal. Our monitoring indicated the presence of these organisms in our source water during the months of February, April, July, September, October and December. Current test methods do not allow us to determine whether the organisms are dead or if they are capable of causing disease. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.